
NEW SPECIES OF *GUATTERIA* (ANNONACEAE) FROM THE GUAYANA HIGHLAND

In preparing the treatment of *Guatteria* Ruiz & Pavón for the *Flora of the Venezuelan Guayana* by J. A. Steyermark and collaborators, we found two species from the *Flora* region to be apparently undescribed. Formal descriptions for these taxa, *Guatteria liesneri* and *G. atabapensis*, are provided below. An additional species from nearby Guyana, *G. clusiifolia*, is described as well.

Guatteria liesneri D. M. Johnson & N. A. Murray, sp. nov. TYPE: Venezuela. Territorio Federal Amazonas: Dept. Río Negro, along Río Baria (= Río Mawarinuma) just upstream from base camp, SW side of Cerro de la Neblina, 140 m, 15 Feb. 1985 (fl, fr), *Nee 30864-a* (holotype, NY; isotypes to be distributed).

Species forsan *Guatteriae modestae* Diels proxima et ramulis glabris, foliis nitidis glabris conspicue reticulatis, et venis secundariis divaricatis similis, sed lamina foliorum 14.6–22.1 cm longa et 5.1–7.0 cm lata oblonga vel oblongo-elliptica et monocarpis 9–10 mm longis et 4–5 mm latis stipite 15–20 mm longo sustentis diversa.

Tree 4–20 m tall with a DBH of 10 cm in one individual. Twigs glabrate. Laminas of larger leaves 14.6–22.1 cm longa et 5.1–7.0 cm lata oblonga vel ceous, oblong or oblong-elliptic; base broadly cuneate to rounded, short-decurrent; apex cuspidate or short-acuminate, the acumen 13–20 mm long; glabrate or with sparse minute hairs abaxially; midrib plane or slightly impressed adaxially, raised abaxially; secondary veins 15–19 per side, diverging at 60–75° to midrib, brochidodromous, closing 3.5–8.5 mm from the margin, raised on both surfaces of the blade; higher-order veins raised and conspicuous on both surfaces of the blade. Petiole 8–13 mm long, 1.5–2.2 mm wide, winged, involute toward base, glabrate. Pedicels 1–2 per leaf axil, occasionally from axils of fallen leaves, 1.2–2.7 cm long, 0.7–1.2 mm wide, articulate 2–7 mm above the base, with minute caducous bracteoles below articulation, glabrate. Sepals 3–4 mm long, 2.5–3 mm wide, free and contiguous at base, chartaceous, triangular to ovate, acuminate at apex, sericeous abaxially, sparsely sericeous or glabrate adaxially. Largest petals 14–19 mm long, 8–10 mm wide, subcoriaceous, oblong, elliptic, or widest

above middle, adaxially pubescent with the hairs densest at base, abaxially pubescent with a glabrous patch at base on inner petals. Stamens ca. 1.4 mm long, oblong, connectives truncate at the apex, papillate. Carpels ca. 100–120; ovaries sericeous, ca. 0.7 mm long; styles coherent, ca. 1.2 mm long, clavate, pubescent on sides, more densely so at apex. Torus 4–5 mm diam., with a rim between stamens and carpels, glabrate. Pedicel in fruit 1.8–2.1 cm long, ca. 1.5 mm thick, articulate 3–5 cm above base, glabrate, with a few small lenticels; torus in fruit depressed-globose, expanded or not, sparsely pubescent. Monocarps up to 60, the seed-containing portion 9–10 mm long, 4–5 mm wide, ellipsoid, apiculate at apex, stipe 15–20 mm long, 0.7–1.0 mm wide, glabrate or with a few sparse hairs, pericarp 0.1 mm thick. Seed 8 mm long, 5 mm wide, ellipsoid, orange-brown, smooth, shiny, the exostome paler than seed coat, slightly exserted.

Additional specimens examined. BRAZIL. AMAZONAS: Rio Negro, Jucabi (near mouth of Rio Curicuriari) and vicinity, 21–25 Sep. 1947, *Schultes & Lopez 8856* (NY). VENEZUELA. TERRITORIO FEDERAL AMAZONAS: Dept. Atabapo, road from San Fernando de Atabapo to Santa Barbara, 12–40 km from San Fernando, 24 Mar. 1974 (MO, NY); Dept. Río Negro, from Los Tambores of Comisión de Limite to Caño Erubichi on Río Baria, 2 Apr. 1984 (fl), *Liesner 17120* (MO, NY); Dept. Atures, road Pte. Cataniapo–Gavilán, 20–25 km SE of Puerto Ayacucho, 4 Nov. 1980 (fl), *Maas & Huber 5106* (VEN). DEPT. RÍO NEGRO: Neblina Base Camp on the Río Mawarinuma, 17 July 1984 (bud), *Davidse & Miller 27447* (MO); Cerro Neblina, between base camp and “Puerto Chimo” along Río Mawarinuma, 26 Apr. 1984 (fl), *Gentry & Stein 46949* (MO, NY), *46983* (MO, NY); 1 to 4 km E of Cerro de La Neblina Base Camp on Río Mawarinuma, 10 Feb. 1984 (fl), *Liesner & Funk 15287* (MO, NY); along Río Baria (= Río Mawarinuma) just upstream from base camp, SW side of Cerro de la Neblina, 27 Jan. 1985 (fl, fr), *Nee 30576* (NY, undistributed duplicates); 16 km NE of San Carlos de Río Negro on road to Solano at Caño de Cholo, 7 Apr. 1984 (fl), *Stein et al. 1472* (MO).

This species is named for Ron Liesner, in recognition of the many excellent collections of *Guatteria* that he has made in the Venezuelan Guayana, which have often helped clarify confused taxonomy. This species is placed in sect. *Pteropus* R. E. Fries by virtue of its leaves decurrent at the base

and tendency of the flowers to occur in fascicles. It resembles most closely *Guatteria modesta* Diels, described from Peru, in the glabrous shoots, the thin leaves with raised secondary and higher-order veins, and the wide-spreading secondary veins, but differs in its oblong to oblong-elliptic leaf blades 14.6–22.1 cm long and 5.1–7.0 cm wide and the monocarps with the seed-containing portion 9–10 mm long and 4–5 mm wide on stipes 15–20 mm long. *Guatteria modesta*, in contrast, has lanceolate leaf blades 10–16 cm long and 3.5–5 cm wide, and monocarps with the seed-containing portion 15 mm long and 8 mm wide on stipes 12–16 mm long. The character of the flowers is very similar, and additional collecting may prove them to be conspecific.

Guatteria atabapensis Aristeguieta ex D. M. Johnson & N. A. Murray, sp. nov. TYPE: Venezuela. Territorio Federal Amazonas: Dept. Atabapo, Río Atabapo, at margin of Sabana Cumare on right bank of Caño Cumare (20 km above San Fernando de Atabapo), 125–140 m, 3 June 1959 (fl, fr), *Wurdack & Adderley 42759* (holotype, NY; isotype, F).

Species foliis coriaceis ad basim rotundatis et monocarpis parvis brevistipitatis *Guatteriae maguirei* R. E. Fries similis, sed lamina foliorum 9.8–15.9 cm longa et 4.5–5.2 cm lata ad apicem acuminata, pedicello brevi, 0.4–0.8 cm longo, et connectivo antherarum papillato absimilis.

Treelet or shrub 3–6 m tall. Twigs pubescent, at length glabrate. Laminae of larger leaves 9.8–15.9 cm long and 4.5–5.2 cm wide, subcoriaceous to coriaceous, lanceolate to ovate, occasionally oblong; base rounded; apex acuminate, the acumen 9–15 mm long; glabrate adaxially, densely pubescent but soon sparsely pubescent to glabrate abaxially; midrib slightly impressed adaxially, raised abaxially; secondary veins 11–14 per side, diverging at 60–90° to midrib, brochidodromous, loops closing at 5–7 mm from the margin; secondary and higher-order veins raised on both surfaces of the blade, more strongly so abaxially. Petiole 5–11 mm long, 1.7–2.5 mm wide, canaliculate, glabrate. Pedicels 1–2 per leaf axil, occasionally from axils of fallen leaves, 0.4–0.8 cm long, 1–1.5 mm wide, articulate 2–3 mm above the base, pubescent, sometimes with tiny persistent amplexicaul bracteoles below articulation. Sepals 3.5 mm long, 2.5–3.5 mm wide, free or connate at base, subcoriaceous, ovate, acuminate to obtuse at apex, appressed-pubescent abaxially, sparsely so or glabrate adaxially. Outer petals 13–16 mm long, 5–5.5 (–9)

mm wide, subcoriaceous, oblong or oblanceolate, rounded at apex, adaxially pubescent, hairs densest at base, abaxially pubescent, with a glabrous patch at base; inner petals 14–21 mm long, 8–12 mm wide, oblong or obovate, rounded at apex, pubescence as in outer petals. Stamens 1–1.2 mm long, long-trapezoidal, connectives truncate at the apex, papillate. Carpels ca. 40; ovaries (immature) ca. 1.1 mm long, sericeous; styles (immature) 0.8 mm long, clavate, pubescent. Torus hemispheric, 3.5–4 mm diam., with rim present between stamens and carpels, glabrate. Pedicel in fruit 0.7–0.8 cm long, ca. 1.8 mm thick, articulate above base, glabrate; torus in fruit depressed-globose or unexpanded, glabrate. Monocarps up to ca. 15, the seed-containing portion 7–9 mm long, 4–5 mm wide, ellipsoid to pyriform, apiculate at apex, stipe 4–5 mm long, 0.5–0.7 mm wide, glabrate or with a few sparse hairs, pericarp 0.2–0.3 mm thick. Seed 7–9 mm long, 4–4.5 mm wide, ellipsoid-fusiform, dark brown, sulcate and somewhat pitted, shiny, the exostome oblique, paler than seed coat.

Additional specimens examined. VENEZUELA. TERRITORIO FEDERAL AMAZONAS: Dept. Atabapo, white sand savannas on the northern bank of Caño Caname, nearly opposite Cucurital de Caname, 2 May 1979 (fl, fr), *Davidse et al. 17066* (MO); Dept. Atabapo, Caño Caname, sabanas de Cucurital, Apr.–May 1979 (bud, fr), *Huber et al. 3729* (VEN); Dept. Atabapo, sabana abierta a unos 20 km al S del medio Caño Caname, 10 Mar. 1980, *Huber 5146* (VEN); Dept. Atures, sabana ubicada en la ribera izquierda (S) del Río Guayapo medio, 27 July 1980 (fr), *Huber & Tillett 5509* (VEN).

This taxon was twice proposed as new, but, as far as is known, neither Fries nor Aristeguieta ever published a description. The species appears to be confined to savannas in the immediate vicinity of San Fernando de Atabapo, where it is found in shrub islands, sometimes on white sand, at 95–100 m. It is readily distinguished from *G. maguirei*, which is sympatric in similar habits, by the shorter pedicel, papillate anther connectives, and larger leaves. It may also be confused with large-leaved forms of *G. schomburgkiana* C. Martius, which differs by having setulose anther connectives, and monocarps with the seed-containing portion 7–10 mm long and 5–7 mm wide on stipes that occasionally reach 5 mm long (more commonly 0.5–2 mm long).

Guatteria clusiifolia D. M. Johnson & N. A. Murray, sp. nov. TYPE: Guyana. Upper Mazaruni River Basin, Mt. Ayanganna, NE side of mountain, 800–900 m, 2 Aug. 1980 (fl), *Tillett, Tillett & Boyan 45009* (holotype, NY).

Inter species *Guatteriae* sectionis *Mecocarpi* forsan *G. durae* R. E. Fries arctissime similis, sed ab ea foliis glabratibus ad apicem truncatis et emarginatis vel breviusculatis (3 mm), petalis 0.6–0.9 mm crassis, et monocarpis 22–27 mm longis et 13–14 mm latis stipite 4 mm longis sustentis divergens.

Tree 25–35 m tall, diam. 40–80 cm at base. Twigs initially with tightly appressed pubescence, then glabrate. Lamina of larger leaves 12–15 cm long, 6.8–7.7 cm wide, subcoriaceous to coriaceous, obovate; base cuneate and decurrent; apex truncate, emarginate or short-cuspidate, the cusp to 3 mm long; surface even, initially with tightly appressed pubescence abaxially, becoming sparsely pubescent to glabrate; midrib impressed adaxially, raised abaxially; secondary veins 13–17 per side, diverging at 60–70° to midrib, brochidromous, loops closing at 3–4 mm from the margin; secondary veins plane, slightly raised or slightly impressed adaxially, raised abaxially; higher-order veins indistinct. Petiole 14–20 mm long, 2.5–3 mm wide, with a prominent involute wing, sparsely pubescent to glabrate. Pedicels axillary, 1.4–1.7 cm long, 1.5 mm wide, obliquely articulate 3–5 mm above the base, with persistent tightly appressed pubescence, bracteoles caducous from below articulation. Sepals 4–6 mm long, 4–6 mm wide, connate at base, subcoriaceous, broadly triangular, apex revolute, appressed-pubescent abaxially, sparsely so or glabrate adaxially. Outer petals 18–21 mm long, 7–12 mm wide, subcoriaceous, elongate-rhomboid or oblong, rounded or obtuse at apex, adaxially pubescent, hairs densest at base, abaxially pubescent, with a glabrous patch at base; inner petals 14–23 mm long, 6–9 mm wide, oblong or oblanceolate, rounded or obtuse at apex, pubescence as in outer petals. Stamens 1.2 mm long, long-trapezoidal, connectives truncate at the apex,

papillate. Carpels 13–16; ovaries sericeous. Torus hemispheric, 4 mm diam., glabrate. Pedicel in fruit 1.9 cm long, 3.5 mm wide, longitudinally wrinkled and with a few small lenticels. Monocarps up to 5, the seed-containing portion 22–27 mm long, 13–14 mm wide, ellipsoid to elongate-ellipsoid, apex rounded, slightly apiculate, stipe 4 mm long, 3–4 mm wide, glabrate or with a few sparse hairs, pericarp 2 mm thick. Seed 21 mm long, 10 mm wide, ellipsoid-fusiform, dark brown, sulcate, rugulose, shiny, the exostome paler than seed coat.

Additional specimen examined. GUYANA: Upper Mazaruni River Basin, along Kako River, 25 Sep. 1960 (fl), Tillett & Tillett 45531 (NY).

This distinctive species, a large tree with coriaceous paddle-shaped leaves and large thick-walled monocarps, is known from riverine and lower montane forest up to 800–900 m on and near Mt. Ayanganna in western Guyana. It may perhaps be expected in the eastern Venezuelan Guayana as well. It is most similar to *Guatteria dura* R. E. Fries, but that species has leaves pubescent beneath, the leaf apex rounded with a cusp 0.5–1.5 cm long, thicker petals, and monocarps with the seed-containing portion 13–17 mm long and 8–10 mm wide and with stipes 9–12 mm long.

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